

page 125 of the Supplement) Hofmeister's clear statement made in 1868, to the effect that mutation, rather than continuous variation, supplies the material for selection in species making. "New forms," said Hofmeister, "do not come into existence by the summation in successive generations of small differences from the customary form, all tending in the same direction; they appear suddenly, and are widely different from the parent."

If America were as Teutonic in the matter of the publication of scientific books, as it is in the organization of education, and of scientific research, we would not have to rest content with supplements, but would early enjoy an American translation of the second German editions of works important enough to run into a second edition.

C. STUART GAGER.

Schaffner's Field Manual of Trees*

As a field manual to slip in one's pocket, the present volume will unquestionably fill a long felt want, as it condenses the information contained in more complete works. The book is scarcely more than one quarter inch thick, and only $6\frac{3}{4} \times 4\frac{1}{2}$ inches long and wide. Brief descriptions are given for the genera and species, but not for the families. Keys are provided throughout and the latter feature has been very thoroughly covered. "Key to the genera of trees in the summer condition," "Key to the genera of trees in winter condition," "General key to the families and genera," and "Key to the fruits" will give some idea of the scope and usefulness of this side of the book. In the appendix is a "General classification of the wood of trees included in the manual" and a glossary of terms. The classification of woods is based on their structure, porusness, and other structural characters.

Of course the main body of the work is taken up with the description of the individual species. All the usual features are covered, tersely and concisely, and for practical field work, these descriptions will be found quite adequate. There are notes on

* Schaffner, J. H. Field Manual of Trees, including southern Canada and the northern United States to the southern boundary of Virginia, Kentucky, and Missouri, westward to the limits of the prairie. Pp. 1-154. R. G. Adams Co., Columbus, Ohio. Price, limp cloth, \$1.25; limp leather, \$1.75. 1914.

the uses of the different species, and the geographical distribution is given for each kind.

The nomenclature used is that of the second edition of Britton and Brown's "Illustrated Flora," but the sequence of families is that adopted in the work of Clements, Rosendahl and Butters in their "Minnesota Trees and Shrubs," published in 1912. This is the "Besseyan System" which differs from the Engler and Prantl sequence in following the gymnosperms by the orders Ranales, Geraniales, Malvales, Rosales, Celastrales and so on. One criticism that can be justly levelled at a purely popular hand-book such as this are the names *Cassiatae*, *Fabatae* and the like, which are categories readily understandable by the trained botanist, but will be unfamiliar to the greater part of the readers to whom the book is addressed.

As a workable pocket manual of trees, the book is sure to have a wide range of usefulness.

N. T.

Warner, C. H., *Formaldehyde as an Oxidation Product of Chlorophyll Extracts*, Proc. Roy. Soc. B. 87: 378-385, 1914, reports a series of interesting experiments demonstrating the production of an aldehyde when light acts on a film of chlorophyll (prepared by allowing an alcoholic or ethereal chlorophyll extract to evaporate on glass plates). The production of aldehyde goes on parallel with a bleaching of the chlorophyll, is dependent on the presence of oxygen, but independent of the presence of carbon dioxide. Along with the aldehyde a volatile substance, capable of liberating iodine from a potassium iodide solution, is produced.

In the same number of the Proceedings, Wager, H., *The Action of Light on Chlorophyll*, Proc. Roy. Soc. B. 87: 386-407, describes a more varied series of experiments covering essentially the same ground. Warner is inclined to consider hydrogen peroxide the active oxidizing agent, produced in the presence of oxygen and light, which attacks the chlorophyll; Wager argues that probably some other peroxide is concerned.

This work again shows that the original experiments with chlorophyll films as performed by Usher and Priestley did not